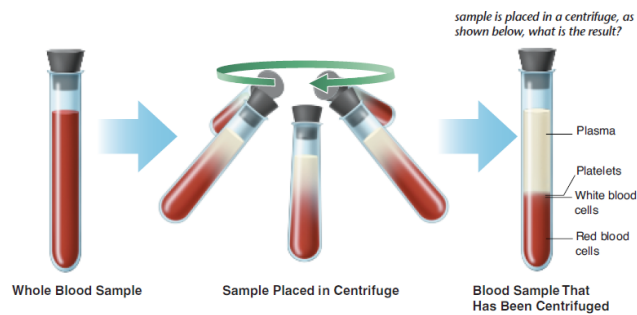


Components of Blood

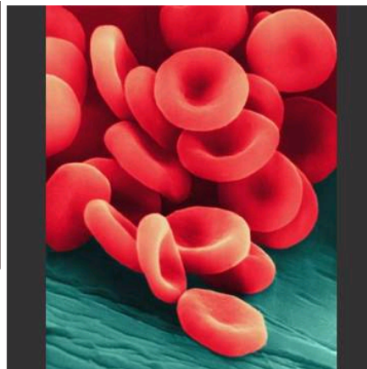
- 55% of blood is plasma.
- plasma is mostly water (90%).
- plasma also has O_2 , CO_2 , salts, nutrients, enzymes, hormones, proteins, waste products.
- other 45% of blood is red and white blood cells and platelet (white blood cells are not very numerous, unless an infection is occurring)



Red Blood Cells

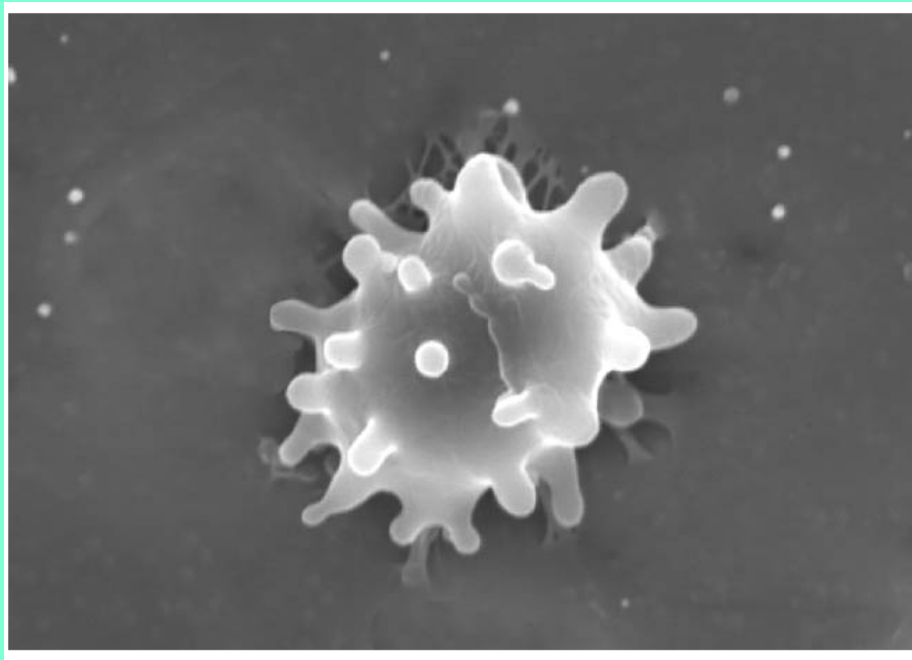
- known as *Erythrocytes*.
- produced in bone marrow.
- red blood cells contain molecules called hemoglobin.
- O_2 binds to hemoglobin.
- red blood cells last for about 120 days.
- they wear out by squeezing in and out of the capillaries.
- the worn out ones are removed by the spleen or liver.
- Anemia - low hemoglobin levels
- makes person feel tired.
- must supplement diet or eat iron rich foods (eg. raisins, liver, green vegetables)

don't have
nucleus



White Blood Cells

- known as *Leucocytes*
- no hemoglobin; therefore, not red.
- produced in bone marrow.
- attack foreign substances or organisms that enter blood; engulf them (phagocytosis) or secrete chemicals that fight off disease.
- an increased number of white blood cells will occur when an infection takes place.

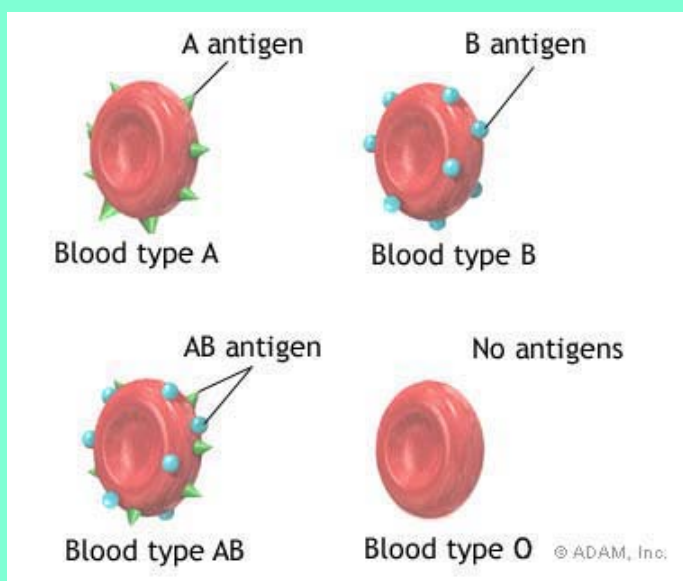
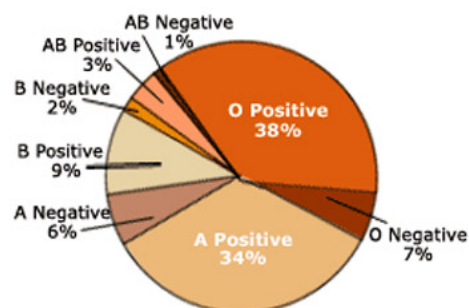


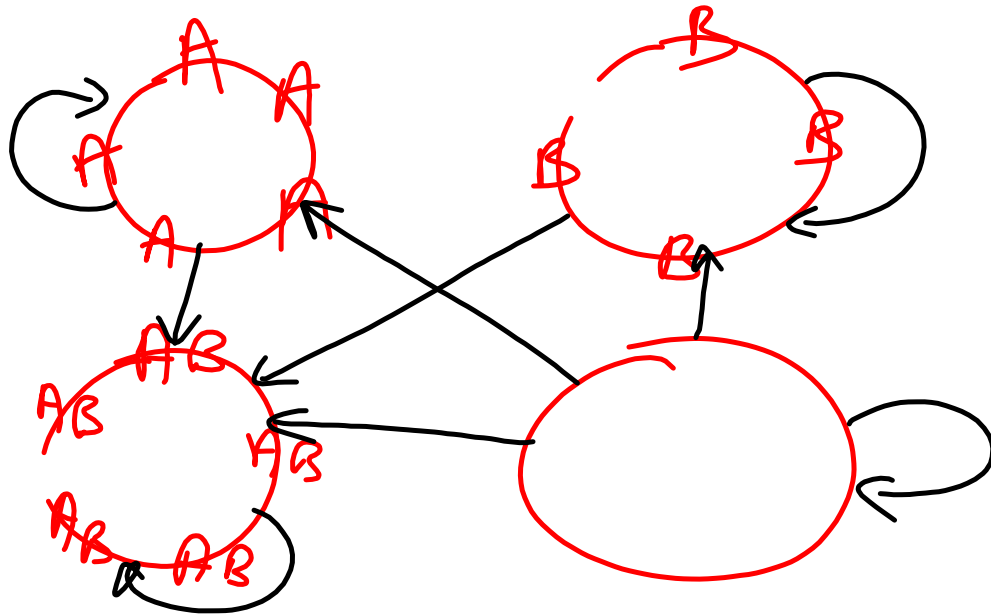
Blood Types

- 4 basic blood types : A, B, AB and O
- the different types are based on the type of antigens (glycoproteins) found in the membrane of the red blood cells.
- when an antigen of 1 blood type encounters an antigen of another blood type --- antibodies are produced to fight the different blood cell.
- the antibodies cause the foreign blood to clump together - called *agglutination*.
- clumped blood cannot pass through blood vessels easily; therefore, O₂ does not get exchanged.

Blood Donation

Blood Type Percentages





Rhesus Factor - another antigen
marker
85% of us have it = positive
15% of us don't = negative
pos. can donate to pos.
neg. can donate to pos. & neg.

A^+ can donate to --- A^+ , AB^+

A^- can donate to --- A^+ , A^- , AB^+ , AB^-

B^+ --- B^+ , AB^+

B^- --- B^+ , B^- , AB^+ , AB^-

AB^+ AB^+

AB^- AB^+ , AB^-

O^+ O^+ , A^+ , B^+ , AB^+

O^- everyone (universal donor)

AB^+ = universal recipient